DOCUMENT RESUME

ED 428 236 CE 078 270

TITLE	Changing Workplace.
PUB DATE	1998-03-00
NOTE	33p.; In: Academy of Human Resource Development Conference Proceedings (Oak Brook, Illinois, March 4-8, 1998); see CE 078 258.
PUB TYPE	Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE	EDRS Price MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Adult Education; *Education Work Relationship; Employee Attitudes; Employer Employee Relationship; *Employment Practices; Extension Agents; *Foreign Countries; Global Approach; Immigration; Informal Education; Job Satisfaction; *Labor Force Development; *Organizational Change; Predictor Variables; Professional Development; Quality of Working Life; Role Conflict; Secondary Education; Secondary School Teachers; Training Methods; *Work Environment
IDENTIFIERS	Georgia; Learning Organizations; Netherlands; Taiwan

ABSTRACT

This document contains four papers from a symposium on the changing workplace and its relationship to human resource development (HRD). In "Globalization, Immigration and Quality of Life Dynamics for Reverse Brain Drains" (Ben-Chieh Liu, Maw Lin Lee, Hau-Lien), the factors responsible for the brain drain from Taiwan to the United States in the 1960s and 1970s and the reverse brain drain after the 1980s are analyzed. "Employee Commitment in Changing Organizations: An Exploration" (Wim J. Nihof, Margariet J. de Jong, Gijs Beukhof) reports on a survey of human resource managers in the Netherlands in which employee commitment was shown to be strongly connected with collegiality and style of management. "A Study of Role Conflict, Role Ambiguity, and Job Satisfaction in the Georgia Cooperative Extension Service and Implications for Training" (Billie J. Chambers, A.B. Moore, Douglas Bachtel) discusses a study of Georgia county extension agents in which role conflict and role ambiguity were determined to be a significant predictor variable of job satisfaction. "Professional Learning on the Job of Dutch Secondary Teachers: Exploring Opportunities for Informal Learning" (Kitty H.E. Kwakman) reports on a study of the effect of individual and job variables on participation in informal learning. (MN)

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Globalization, Immigration and Quality of Life Dynamics for Reverse Brain Drains
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Hua-Lien, Taiwan, R.O.C.
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Employee Commitment in Changing Organizations: An Exploration
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1998 Conference Proceedings

B-Chu B Chambers
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March 4 - March 8, 1998
Oak Brook, IL

CE 078 270

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Globalization, Immigration and Quality of Life Dynamics For Reverse Brain Drains

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Globalization and international development in trades and economic growth through human capital accumulation , whether brought about by legal immigration and labor mobility, or by the brain drain and/or even the reverse brain drain effects on the Quality of Life (QOL) have been controversial issues for decades, demo graphically, socioeconomically and environmentally . According to a recent U.N. report, presently more than 60 million people, or about 1.2 percent of the world's population, are not residing in the country where they were born. The impacts of those immigrants on the source and host country's socioeconomic and environmental quality of life (QOL) have been debated heatedly (Bodas, 1994). Since one-third or about twenty million of them are residing in the United States, this paper attempts to study the interdependent QOL effects of those immigrants in the U.S. by country of origin. Special emphasis will be given to those whose social and cultural backgrounds are tied to the Chinese and were borne in Taiwan, R. 0. C. (Liu, et al., 1996).

The brain drains from Taiwan to the US. observed in the 1960s and 1970s were reversed after the 1980s. As a result of these accelerated rate of increase in socioeconomic and professional mobility of human resources -especially the reverse brain drains between U.S.A and Taiwan, R.O.C., this paper employs a balanced QOL model consisting of sectors representing the Laws, Sciences and Arts argues that both countries' QOL have been enriched and human capital stock empowered concurrently. In other words, our findings support those positive educational merits initially observed by Schultz (1961 and 1988) and the comparative advantages recently delineated by Won- (1995) , Carbaugh (1995) Weidenbaum and Hughes(1996), and Sen (1997), etc.

Key Words: Globalization and Migration, Human Resource Management, Quality of Life (QOL) Indicator, Regression Analysis, Brain Drain Effects. Contact: Dr. Ben-Chieh Liu, Institute of International Business, National Don-Hwa University, Hualien, Taiwan, R.O.C. Tel .(03)866-250OXI 75 1 fax (03) 866-1484- E-M:bcliu@cc.ndhu.edu.tw

As pointed out by Liu (1975,19831, 1994), Fox (1983) and Sen (1977,1982,1995), the Quality of Life (QOL) model system offers a standard analytical and measurement framework in managerial economics against which the contributions made by any input factors or technical transformation process such as immigrants or labor mobility to their source and/or host countries may be estimated and compared. Furthermore, the place and role of Quality of Life in economic evaluation and welfare economics have been ascertained and reaffirmed by Sen (1997) recently. In Liu's earlier work (1975), the QOL concept, whether state- or context- dependent was described as follows:

"Quality of life (QOL), admittedly, is a very subjective expression of an individual's sense of well-being. In a very real sense it expresses that set of "wants" which, when taken jointly, makes the individual happy or satisfied. However, human wants rarely reach a state of complete satisfaction, except possibly for a very short time: as one want is satisfied, another rises immediately to take its place. As a result, the concept of QOL varies not only from person-to-person, but also from place-to-place and from time-to-time. Interest in the development of QOL measures grew remarkably during the 1960's because such measures are essential to assessment of

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many aspects of social progress and social accounting, and are useful for national goal-setting, program evaluation, and priority ranking.

Concerning the composition of QOL framework, Liu further stated:

"Most people approach "quality of life" with varying preconceived definitions, but it may be considered here as an output of two aggregate input factors: physical and spiritual. The physical input consists of quantifiable goods, service, material wealth, etc., while the spiritual input includes all nonmeasurable, psychological factors such as community belongingness, esteem, self-actualization, love, affection, etc. Although the production function expressing the relationship between output and input factors of QOL is known to be enormously complex (there are as many such factors as there are people), an aggregate homogeneous production function may be assumed for the community as a whole. Since psychological inputs are riot quantifiable, the QOL output may be taken at a particular point in time as a positive function to those quantifiable, social, economic, political and environmental inputs."

Operating and functioning under various constraints, the three sectors of the QOL model, -- Law, Scientific Thought, and Affective/Artistic Thought, are shown in Figure I below. By motivating or constraining human behavior, these three interdependent sectors-legal systems or codes of the Governing body (The LAWS), scientific-rational thinking (The SCIENCES), and affective or artistic elements that sustain human relationships (The ARTS) -- form the quality-of-life (Q.O.L.) inner circles which interact with other QOL components, such as political, business and environmental conditions and institutions to organize and shape the linked structural relationships among, these state- and context-dependent quality sets or components.

A simplified visual representation of the QOL framework consists of a triangle , the sides of which represents the three types of relational and functional factors that jointly determine the overall QOL in the circle as shown in the figure. One may even describe the area within the triangle as actually achieved or realized, and the area within the circle in which the triangle appears as the potentially desired and optimally expected maximum outcome, indicating that the ratio of actual to desired results Is always less than unity. However, the ratio between the triangle and the circle embodied becomes larger and more equally distributed as the input to output transformation process becomes more efficient and effective institutionally and theoretically as described under the General X-Efficiency theory postulated by Leibenstein (1979).

Within this triangle-shaped model, linkage of legal, scientific and human-relation elements appears identical for both Western and East Asian decision makers, regardless whether the underlying quality concepts are generated and/or transformed through the state-dependent or the context-dependent functional relations (Liu et al., 1996 and 1997) as shown in Figure 2. Some similar thoughts on quality transformation and value determination from Hofstede (1993) and Tversky and Kahneman (1991) are also reflected and shown in Figure 2. Overall, all decision makers would agree with the delineation of elements and structure represented in the QOL framework, and the importance of these elements in evaluating, and measuring business success and/or personal satisfaction and happiness. Nonetheless, the weights and priorities assigned to each segment will differ remarkably depending on whether the decision maker is Western or East Asian. For example, the legal segment of elements was given the highest priority and human relationships the lowest by Westerners, with the opposite being true for East Asians: a clock-wise versus a counter clock -wise moving relationship.

This is particularly true in mainland China - a main focus of analysis in The Bamboo Network (Weidenbaum and Hughes, 1996) - where Guanxi , or Yuan play a much more critical role in business dealings than laws or legal systems from the viewpoint of the Chinese businesspersons or the expatriates, whether the business in question is the smallest family operation or the largest multinational corporation.

Liu's earlier work (1975; 1983) and Liu, Mulvey and Hsieh's later research (1986) originally focused upon quality-of-life-based motivation for migration of labor within the United States. This paper represents another step in applying some of the familiar socioeconomic variables, (Schultz 1961 and 1988)-- particularly educational attainment and occupational status which were used to measure motivation for migration, to the measurement of the effects of immigrants to the US by country of origin, with special emphasis on those legal immigrants from Taiwan, R.O.C. Stepwise regression techniques are employed and some econometric problems such as the double counting

procedures and the missing observations are discussed. The social-cultural impacts on income or Q.0L distribution among legal immigrants and the reverse brain drains in the U.S.A. and Taiwan are reassessed, respectively (Liu, et al., 1996 and 1997)

Applying the QOL Model for Assessment

Borias' (1994) work, which focused on the problems of illegal and legal immigration, changed perceptions of the facts that long dominated the discussion over the significant socioeconomic benefits brought about by, and the negligible employment opportunity lost to, the immigrants. Perceptions changed because the demographic mix of immigration was radically altered during the 1980s and the combination of social security and welfare burdens plus the budget deficit led to a worsening situation for several administrations in the US. For example, in fiscal 1996, Federal income in the U.S. was $1355 billion and outlays were $1599 billion, of which 36% was spent on social security, medical care and other entitlement programs, leaving of a deficit of $164 billion.

The historical and demographic changes in the size, ethnicity and national origin mix, cultural and educational composition as well as professional skills associated with the immigrants, legal or illegal, have posted new questions, issues and perceptions concerning the overall social well-being or Q.0.L. in both host and source countries. Those concerns are further exemplified vividly in recent U. S. elections and campaign debates, as well as shown in the welfare reform and get-tough House/Senate bills to reduce federal budget deficits by cracking down on illegal immigrants and curtailing welfare and benefit payments available to legal immigrants. For example, a historic welfare reform bill that requires recipients to work and ends some of the federal public assistance guaranteed since the Depression Era was signed into law by the US President recently.

For the first time since the turn of the century , the United States in 1989 welcomed more than I million immigrants in a single year. The immigration record was set in 1990 when more than 1. 5 million entered the U.S. It was estimated that in the 1980s roughly 75 percent of the Asian and Pacific Islander 01rowth and 50 percent of the Hispanic growth was due to immigration. These changes have occasioned the emergence of unique problems for new populations or those associated with them as far as their overall QOL are concerned. The fact that "Asian Americans are subject not only to xenophobia based on color and different appearance, but also to the negative implications of some of others success," was documented in an executive summary report – Racial and Ethnic Tensions in American Communities, issued by the Commission on Civil Rights (1992). It is also noted that in the report on the roundtable discussions of Asian civil rights issues published by the Commission in 1988, that "Asians have been denied rights considered basic by most Americans" throughout much of their history in the United States.

Income, Education and Employment: The Linkages

The primary objective of this paper is to investigate some cultural, socioeconomic and environmental impacts in the States as brought about by all LEGAL immigrants and in particular, by all Chinese American immigrants. Among the 20 million foreign-born population in the U.S. in 1990, there were 530,000 from the Chinese Mainland, 244,000 from Taiwan and 147,000 from Hong Kong. Out of the immigrants 25 years and older, Chinese-Americans from Taiwan ranked first in educational attainment with 91.6% high school graduates (60.6% for Mainlanders and 83% for Hong Kong), far exceeding the total average of 58.8 for all immigrants and the U.S. rate of 78.4%. For college graduates, Taiwan's 62.2% ranked second, only slightly behind India (64.9%), but far exceeding the aggregate immigrants' average of 20.4% and that of 30.9%, 46.8% and 21.4% for mainland China, Hong Kong and the U.S. as a whole, respectively.

As a result, most of the Chinese immigrants from Taiwan were engaged in professional occupations with higher earnings and far better median household incomes than the average immigrants: 28.7% versus 123% in professional specialties and $38,966 versus $28,314 for average household income (the comparable figures for immigrants from the Chinese Mainland and

Hong, Kong are 16.9%/22,5%, and $330,597542,033, respectively -- much higher than the US median family income of $29,943).

As far as the immigrants inclined to apply for social welfare-those 65 years old or over-- are concerned, Hong Kong (1.9%) and Taiwan (2.4%) were the lowest two, next only to Thailand's 1.1%, and far below the US average of 12.6%, and all legal Immigrants' average of 13. 6% and mainland China's 17.9%. See Table I for details.

Empirical Results Reestimated

Results from our step-wise regression models shown in Table 2 indicate that education expressed by percentage of college graduates (PCU) is, as expected, the prime factor contributing to a higher percentage of professional employment (PRO) which in turn generated higher median family income. Using median family income as the dependent variable, Equations (1), (3), (4), (7) and (8) in Table 2 clearly illustrated the synergistic relationship between these two independent variables. Legal immigrants from Asia in general and those from India, Taiwan and Hong Kong, in particular, have uplifted others in raising their family income and/or producing better employment opportunities or professional and social mobility in the US.

Quality of Life (QOL) or social well-being in this country has been enriched considerably by education as pointed out by Liu (1981), Hsieh and Liu (1983) and Liu, Mulvey and Hsieh (1986), among others. As expected, highly educated immigrants who acquired professional and technical skills either before or after they enter this country, have undoubtedly made significant contributions to this country's socioeconomic well being (Schultz 1961 and 1988). However, the "Painful Figures" for the immigrants reported by Daves (1996) should not be over looked and the impacts of the immigration bill targeting, legal should not be underestimated.

The percentage of immigrants who are 65 years old and over (P65) has apparently adversely affected the median family income. So is the variable of late arrival-percentage of immigrants coming to this country between 1980 and 1990 (PEA80) as the "huddled masses"-- showing statistically significant negative impacts on median family income. These two variables jointly represented a decline in the supply of skilled and needed work force and a sharp increase in demand for public aid and assistance in education and welfare. Although the (size) variable showed negative impact on family income as expected, the results are not statistically significant. This is also true for two other variables-- percentage of immigrants engaging in labor (PLO) and service (PSO) jobs.

Using a step-wise regression model, results shown in Table 2 are quite encouraging, as far as its sensibility and predictability in variable selection and explanatory power are concerned (Ramanathan, 1996). By eliminating such aggregate categorical data for Europe, Asian, Caribbean, Central America and South America, our results show that variations in regression coefficients estimated are more significant and coefficients of determination (R^2) are higher than 0.73 and uniformly consistent across equations than previously estimated by us (Liu, et al. 1996).

Concluding Remarks: The Reverse Brain Drain Effect

The characteristics of immigrants arriving after 1980 are much different from the average of all immigrants in that they are younger and are making much less average annual income than that of the US as a whole, despite the fact that the percentage of college graduates is still higher for those 1990s immigrants aged 16 and over- -23.2% of them were college graduates versus 19.9% for the US and their annual earnings in 1994 were $8,500 versus $15,170, respectively. Further, recent immigrants are concentrated in California--31.1 % of 1990s immigrants versus 11.9%of the overall population, followed by New York, Florida and Texas (Card, 1996).

Adjusting for broad occupational and industrial categories, American born Asian men with high levels of schooling were found to earn less than comparable non Hispanic white men. The 1988 Civil Rights Commission report clearly stated that "It thus appeared that extensive formal schooling enables Asians to enter high-paying occupations and industries, but within these occupations and industries, Asians are underrepresented in higher paying positions" (p. 1) These

findings on Glass ceilings should reject the conventional explanations that Asians are recent immigrants and they lack complete English proficiency, since the findings hold even for those Asian men who were born and raised in America.

Political implications regarding constantly rising, federal budget deficits and welfare program loopholes and abuse are clearly illustrated and vividly reflected by the passage of California's "Proposition 187" ballot with a wide margin at the state/local level, and the US House and Senate's 1996 "Immigration Reform" bills which were approved overwhelmingly to limit welfare and subsidy payments to BOTH legal and illegal immigrants at the federal level. Issues between legal and illegal immigrants are further complicated by the welfare reform bills and the fact that "Immigration bill targets legals, too" was well reported (Jacoby, 1996).

As Lee, Liu and Wang (1994) and Liu, Lee and Hu (1996) have pointed out, success in education and human capital accumulation along with reverse brain drain returned from the US to Taiwan in the eighties have added significantly to the capital stock of Taiwan. The return of US trained scholars, engineers, scientists and professionals also jointly created the major socio-economic and democratic achievements as recently observed in Taiwan. Concomitantly, this paper also concluded that to explain superior Q.O.L. attainment such as has been achieved in the US by Asian immigrants in general and those from Taiwan in particular, one must recognize the dynamic and reinforcing role of higher education in human capital development that took place in their homeland or after their immigration to the States - the host country. Globalization facilitated by the movement of empowered and skilled labor or highly educated human-capital resources have undoubtedly enriched the overall QOL in both host and source countries either as a consequence of the original "brain drain" or as its subsequent reversal. In other words, our findings on the mutual benefits brought about by the reverse brain drains of legal immigrants, especially those from Taiwan, ROC are as encouraging and appealing as highlighted by Wong in his book, *International Trade in Goods and Factor Mobility (1995) Statistical data on geographic distribution of US civilian labor force and unemployment and, Chinese Scholars and college students from Taiwan by state are contained in Table 3.*

According to Carbaugh, we further noted that the capital and information resource movements between the Silicon Valley in California and Industrial Park in Hsinchu, Taiwan have reaffirmed our findings:

"The infusion of foreigners into the United States during, the 1980s-1990s, however, did not include only people with minimal skills and minimal education. Enjoying the benefits of a foreign "brain dean", the U.S. reaped a bonanza of highly educated newcomers who enhanced the competitiveness of its companies. America's high-tech industries, from biotechnology to semiconductors, increasingly depended on immigrant scientists, engineers, and entrepreneurs to remain competitive. In Silicon Valley, the jewel of U.S. high-tech, and knowledge of how things get done overseas, immigrants also contributed to the export of Made-in-U.S.A goods and services. Moreover, they helped revitalize America by establishing new business and generating jobs, profits, and taxes to pay for social services. The infusion of mew people into the United States thus helped improve the globally competitive top half of its economy. These benefits must be weighed against the economic disruptions caused by the infusion of less-educated and less capable people into the nation." (Casbaugh 1995, P.300)

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Employee commitment in changing organizations: an exploration

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Commitment of employees can be an important instrument for improving the performance of organizations. Based on international literature and studies, commitment has been defined as organizational and task commitment, and is related to personal, job and organizational characteristics. This survey intend to explore some important relations between the characteristics, commitment and organizational effects. Between commitment and the level of the organization the most important relations are a better communication and less illness. At the level of the individual employee the commitment to change and to take part very active in change processes, bringing up new ideas. These conclusions are in line with the literature. Commitment is strongly connected with colleagues and the style of management and could be seen as an important asset of the learning company.

1. Commitment: problem statement and theoretical framework

Employees in modern "learning" organizations are more and more expected to display effort, motivation and initiative. The success of an organization depends not only on how the organization makes the most out of the human competencies, but also how it stimulates commitment to an organization. Employee commitment together with a competent workforce seems to be of decisive importance for an organization to be able to compete in quality and to go along with changes. The skills needed in organizations have changed in the last 15 years mainly as a consequence of new technologies and automation. Newer concepts of organizations based on creativity and learning concepts are emerging and will require more responsibilities of employees (Nonaka & Takeuchi, 1991; Senge, 1990). This might lead to more demands and differences in job satisfaction. From a study in Britain (Gallie & White,1993) we learned, that employees that participated more in decisions about the organization of work were more satisfied than those that had low levels of participation (o.c. p. xi). Whether employment commitment is affected by external or internal factors is part of the British study. We are mainly interested in internal factors, because these factors can be handled by organizations themselves. Therefor, we wanted to investigate whether and how employee-commitment in changing organizations is affected by internal and external factors, and in the effects of commitment. When companies are rather stable this commitment might be different from organizations under pressure of mergers, re-engineering and downsizing. This study is aimed to answer the following questions: What affects employee commitment and what are the effects of employee-commitment?

Definitions of commitment

Morris, Lydka and O'Creevy (1993) state that 'it is commonly noted that consensus over the definition of commitment does not consist'. Mowday, Porter & Steers (1982) define commitment as 'the relative strength of an individuals identification with and involvement in a particular organization'. They mention three characteristics of commitment: a believe in and acceptation of the values of the organization, a strong willingness to take effort for

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the organization and the desire to remain with the organization. These three characteristics show that commitment is not only an attitude, but also a behavior. Most studies on commitment focus on the organization as a whole. In some cases a distinction is made between organizational commitment and task commitment (Peeters and Meijer, 1995). Gallie and White (1993) use the term organizational commitment to refer to acceptance of organizational values and to the willingness to stay. Task commitment refers to the effort one puts in his work. Organizational commitment and task commitment are combined in the definition of commitment that is used in our study, where commitment is defined as 'a sense of loyalty to and identification with the organization, the work and the group to which one belongs. This feeling is expressed in the motivation to bring effort into one's work, the motivation to take responsibility and a willingness to learn. A precondition is that the employee is well informed and is involved in decision-making processes'.

Characteristics affecting commitment

Mowday et al. (1982) suggest four categories of variables affecting commitment: personal characteristics, job characteristics, work experiences and structural characteristics that are most frequently mentioned. In other studies different categories are used. The categories personal characteristics, job characteristics and organizational characteristics will be described here:

Personal characteristics

In general personal characteristics do not appear to play a large role in determining commitment (Morris et al., 1993). Personal characteristics that are frequently studied are age and level of education. It is suggested that younger employees are more committed than older employees, because they are highly motivated to start a career and able to cope with change, whereas older employees are less committed because they are often disappointed (Morris et al., 1993). On the other hand are older employees, who have worked many years for the organization, do have a strong attachment to the organization. Gallie and White (1993) found that higher educated employees have a higher *task commitment*, while a higher level of education opens more possibilities to do the work that you like. In studies that focus on *organizational commitment* however, a small negative correlation is found between level of education and commitment (Mowday et al., 1982).

Job characteristics

From many studies it is concluded that job characteristics are the most important to predict commitment (Peeters and Meijer, 1995; Gallie and White, 1993). Allen and Meyer (1990) found that factors that contribute to job challenge are highly correlating with commitment. Walton (1985) focuses on employee involvement, the combination of doing and thinking in a job, and individual responsibility. This form of work design is what Lawler, Mohrman and Ledford (1995) call 'the high-involvement approach'. The high involvement approach relies on employee self-management and participative management styles, where employees at all levels are given the authority to influence decisions considering their own work. Parker, Mullarkey and Jackson (1994) note that 'such high involvement practices not only help to build employee commitment, but they also foster their development. It is this emphasis on cultivating learning throughout all levels of the organization which shows promise of becoming the critical skill that will determine competitiveness in the future'. Elements of the high involvement approach are found in the job characteristics investigated by Biessen (1992), who based his study on a model of job characteristics by Hackman and Oldham (1982). Some of these characteristics are variety in tasks, autonomy, and job interest.

Organizational characteristics.

According to Mowday et al. (1982) decentralization and participation in decision-making are the most important organizational characteristics that influence commitment. Walton (1985) suggests that commitment will increase in a flat organization where coordination and control is based more on shared goals than on rules and procedures and where employee participation is encouraged.

An important characteristic is the style of leadership. Peeters and Meijer (1995) found a correlation between the social support of the leader and commitment. In line with the high-involvement approach is participative leadership, where employees and managers cooperate in decision making. An open communication is necessary and the employees are encouraged to come up with new initiatives.

Human resource policies are also considered as an organizational characteristic. Good career prospects and possibilities for further training and education are found to be related to commitment (Caldwell, Chatman and

O'Reilly, 1990; Morris et al., 1993; Gallie and White, 1993). There is no agreement on the influence of the level of salary on commitment. Gallie and White (1993) found no relationship between salary and commitment, but Morris et al. (1993) found that a good salary has a small positive influence on commitment.

2. Effects of commitment

Earlier studies of commitment focus on the effect of commitment on employee-turnover (e.g. Mowday et al., 1982). However, in the words of Allen and Meyer (1990), '....what employees *do* in the job is as important, or more important, than whether they remain. It turned out to be difficult to get empirical evidence on the effects of commitment. The most important reason is that it is difficult to measure a direct relationship between e.g. the profit of the organization and commitment, because there are to many intervening factors (Van Breukelen, 1996). Lawler et al. (1995) choose to measure the effects as perceived by managers. They conclude that commitment (and involvement) have positive effects on, among other things, productivity, quality and competitiveness. They also found, like Gallie and White (1993) that committed employees are more satisfied.

On the bases of the preceding analysis a research model is set up that can be used for designing research instruments, formulating relationships, and for testing hypothesis. In the end the model can be used for validation and model testing. In this stage of research, however, the model has a heuristic character and will be used for exploring relationships.

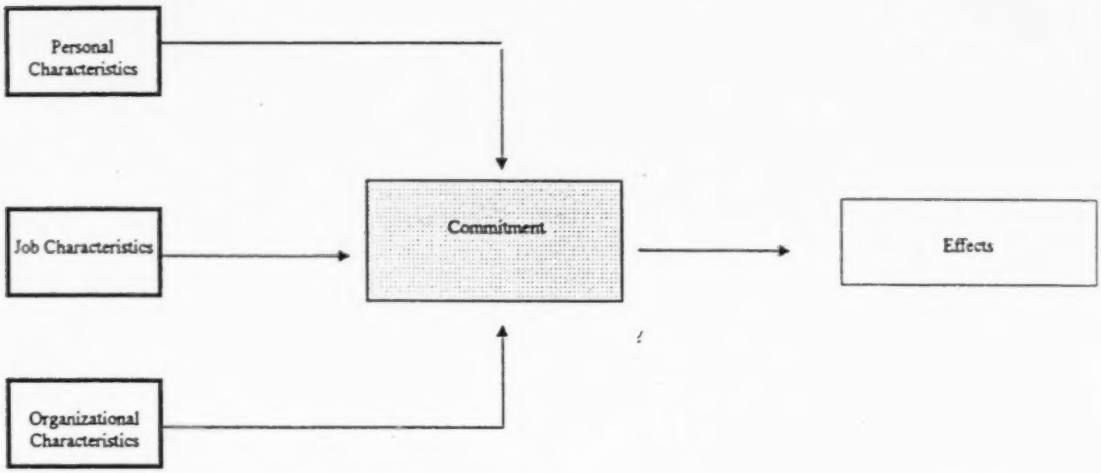

Figure 1: The commitment-effect model

3. Methodology

On the basis of the literature, the model and existing instruments a new questionnaire was constructed with the following aims:

1. to measure employee commitment;
2. to investigate which factors influence commitment;
3. to make an inventory of the activities that organizations use to stimulate commitment;

Sample and response

The questionnaire was sent to a random sample of 4250 human resource managers of organizations in the Netherlands from a database with 10.000 respondents. Of these questionnaires 290 were returned. Although this is a very low response rate (7%), the sample is representative for all types of organizations in The Netherlands, and the distribution over the different branches of organizations equals the real situation for the greater part. Also the number of larger and smaller organizations are represented in a reliable way. But we would like to stress that because of this low response rate the results should be interpreted with caution.

Instruments

There are many scales to measure *organizational commitment*. The most well-known are the organizational commitment questionnaire (OCQ) by Mowday et al. (1982) and the affective organizational commitment scale (ACS) by Allen and Meyer (1990). Gallie and White (1993) use a questionnaire that is based on the ACS, but they added some questions to measure 'task commitment'. This questionnaire is the most suitable for our purpose, because it is relatively short and it measures both organizational and task commitment. A disadvantage is that the questions in all these scales are directed to employees. Our purpose, however, is to measure employee commitment as perceived by managers. So the scale is adjusted and translated for this group. The scale consists of eight items. Cronbach's alpha was 0.82, which is quite satisfactory.

The measurement of commitment

Existing scales to measure antecedents of commitment have the same disadvantage as mentioned above, namely that they are directed to employees instead of to their managers. So again existing items were adjusted for the target group. The factors are categorized in personal, job and organizational characteristics according to figure 1 and listed in table 1. Items to measure job and organizational characteristics are derived from the BASAM (BASic questionnaire Amsterdam; Biessen, 1992). Most characteristics were measured by only one or two items. Cronbach's alpha is not calculated for these items. Originally a scale of five items was constructed to measure teamwork. A principal components analysis showed that this scale consists of two different scales. The first scale measures 'teamwork', that is whether employees work in teams or individual. This scale consists of two items. (Cronbach's α is 0.55).

Table 1: Variables affecting commitment

Personal characteristics	
Level of education	
Age	
Job characteristics	
Interest	The interest of the job as experienced by the employee
Variety	Variety in tasks and the use of a wide range of skills and knowledge
Autonomy	Possibility of taking own decisions on how to do the task
Feedback	Feedback from the results of the task
Teamwork	Working in teams
Collegiality	Cooperation and social climate among colleagues
Work environment	Physical conditions of job and work environment
Mental load	Mental load (difficulty, responsibility) of the task
Work pressure	Pressure to get the work done in time
Organizational characteristics	
Size	Number of employees
Leadership style	Extent of participative leadership
Height of salary	Relative height of salary
Career prospects	Attention for career wishes of employee
Possibilities for further education	Possibilities of training for employees

The second scale measures the amount of loyalty and cooperation between colleagues. This scale is mentioned 'collegiality' and consists of three items. (Cronbach's alpha is 0.60). An organizational characteristic under investigation is the leadership style in the organization. The leadership-scale consists of seven items. (Cronbach's alpha is 0.79).

The measurement of effects

To measure the perceived effects of commitment the respondents were given a list of possible effects. They were asked to mark the most important effects that they found in their organization, and to add effects that were not listed if necessary. (In this paper these results are not taken up).

Activities to stimulate commitment
A list of twelve possible activities or interventions to foster commitment was given. The respondents were asked to mark an activity that they carry out in their organization and to add activities that are not on the list.

4. Results and conclusions
The response on the survey was a handicap to carry out a validation study or model test. In stead of this a correlation analysis was carried out between commitment and the different variables. On the basis of these correlations we can perceive whether the relationships are in line with former studies in Britain and the Netherlands. In this case managers of changing organizations were the respondents in stead of employees themselves.

Commitment
The results show that in the perception of managers employee commitment in general is quite high. The mean score is 4.0 (S_d = 0.58) on a scale from 1 - 5. In Table 2 an overview of correlations is given.

Personal Characteristics
No strong relationships are found between personal characteristics and commitment. It should be noted here that this study concentrates on the *average* age and *average* level of education of all employees of a company as indicated by the managers. Commitment is strikingly low in organizations with employees with an average age between 41 and 45. Comparable results are found by Boerlijst et al. (1995). In addition, 30% of the respondents believe that younger employees invest more in a company than older employees, especially during organizational changes.

Job characteristics
As expected, job characteristics correlate strongest with commitment. The most striking correlation is found between commitment and collegiality (r = 0.64). Peeters and Meijer (1995) found a weaker correlation between social support of colleagues and commitment. De Korte and Bolweg (1994) conclude from a qualitative study that the atmosphere in a team affects commitment. Working in teams, rather than working individual, also goes together with higher scores on commitment (r = 0.33). Other important correlations with commitment are job interest (r = 0.40), variety (r = 0.35), autonomy (r = 0.23), and feedback (r = 0.29).
It is striking that the average scores on these characteristics are relatively low. This means that a lot of improvements in commitment can be made when more attention is paid to these factors. The mental load of the job has neither a positive nor a negative correlation with commitment (r = 0.01), but work pressure has a moderate strong positive relationship (r = 0.33). We presume that a certain amount of work pressure makes the job more challenging and therefore leads to higher employee commitment.

Organizational characteristics
We found the leadership style to be the second most important correlation of commitment (r = 0.53). The size of the organization hardly affects commitment (r = 0.14), although in smaller organizations commitment in general is a little bit higher. Human resource policies as the attention that is given to individual career prospects and the possibilities for further education turn out to have a moderate correlation with commitment (r = 0.29 and r = 0.25). In most organizations that took part in the study, the salaries are similar to salaries in comparable organizations. No meaningful correlation between the height of salary and commitment was found.

Effects of commitment
The main effects of commitment as reported by managers are improvement of quality and client-centeredness, improvement of organizational communication and a larger willingness to change. These effects are mentioned by more than 50% of the respondents. In table 3 the effects are listed in three categories: effects on the level of work-processes, effects on the level of organization and effects on the level of employees.

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Table 2: Means, standard deviatons and correlations for variables affecting commitment

	Mean[1]	Std. Devi	Correlation[2]
Personal characteristics[3]			
Level of education	-	-	0.15*
Age	-	-	-0.17*
Job characteristics			
Interest	4.32	0.67	0.40**
Variety	3.42	0.74	0.35**
Autonomy	3.65	0.87	0.23**
Feedback	3.09	0.98	0.29**
Teamwork	3.45	0.91	0.31**
Collegiality	3.68	0.63	0.64**
Work environment	3.79	0.82	0.23**
Mental load	3.11	1.09	0.01
Work pressure	3.94	0.73	0.33**
Organizational characteristics			
Size	-	-	-0.14*
Leadership style	3.57	0.51	0.53**
Height of salary	2.91	1.15	0.04
Career prospects	3.57	1.09	0.29**
Possibilities for further education	3.68	1.21	0.25**

1: Mean score on scale with 5 = high and 1 = low.

2: Spearman's correlation with commitment score.

3: No mean score is given because this item does not have a five-point-scale.

**Significance $p < 0.01$; * Significance $p < 0.05$

Table 3: Effects of commitment

	% of response mentioning this effect
Work	
Better quality	66.2
More client-centeredness	53.1
Higher productivity	40.3
Employees	
Higher willingness to change	49.7
Changes are faster accepted	44.5
Employees learn more	25.2
Organization	
Improved communication	51.4
Less illness	40.3
Employees come up with more good ideas	34.5
Knowledge and skills remain in the organization	33.4
Higher capacity of change	29.3
Higher profitability	15.9
Higher internal mobility	14.5
Other	0.7

Activities to stimulate commitment

The activities that are marked by more than 50% of the respondents are: meeting where employees get information about the organization (61%), stimulation of informal contacts between managers and employees (58%), training and education (53%), and parties for employees (51%). These 'most popular' activities, turn out to have the highest impact on commitment. In Table 4 the results of a t-test is presented for the differences in mean commitment scores when these activities are or are not a part of the companies policy.

Table 4: Mean differences when activities are and are not undertaken.

	Mean commitment score					
	Marked	Not marked	Mean difference	t	df	Significance
Activity						
Party	4.18	3.87	0.31	4.6	281	< 0.01**
Informal contacts	4.10	3.91	0.19	2.7	281	< 0.01**
Training	4.09	3.95	0.14	2.1	281	0.03*
Informative meeting	4.06	3.97	0.09	1.2	281	0.21

* : Significance p ~ 0.05; ** : ** Significance p < 0.01

5. How this research may contribute to new knowledge in HRD

The small sample does make us reluctant for generalizations. Originally set up as a study to test the validity of the commitment -effect model, the low response forced us to use the survey data for a more exploring kind of correlation study. So the contribution to new knowledge in HRD and to new practices is relative. What is necessary is a replication with a larger sample, and a study under employees the cross validate the outcomes of HR managers. But the general conclusion that we find is that commitment leads to positive effects for the company. The most important effects perceived by managers are: higher quality and better client relationships. At the level of the organization the most important effects are a better communication and less illness. At the level of the individual employee the commitment to change and take part very active in change processes, bringing up new ideas. While these effects are in line with the literature, this study did not test the relationship between commitment scores and effects. The effects are average opinion scores.

Commitment is correlated with colleagues (teamwork) and style of management. Both are part of an informal organizational culture, with a low status difference between employees and managers. In this sense the study could underscore some basic principles of what is meant the "learning organization"(Senge, 1990). Many organizations do undertake actions to develop this kind of culture, more or less intentional. Especially activities as parties and informal sessions and meetings can stimulate commitment.
The implication can be that for companies willing to rise the commitment of the employees a cultural change is necessary, based on core competencies. This is not easy to do, but evidently profitable. A start could be made by a better selection and training of HR managers and setting up an commitment policy. Before doing so, a replication study has to prove that correlations can be transformed into predictions.

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A Study of Role Conflict, Role Ambiguity and Job Satisfaction in the Georgia Cooperative Extension Service and Implications for Training

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Organizational and personal correlates of role conflict, role ambiguity and job satisfaction were examined for Georgia County Extension Agents (CEA's). Several personal and work characteristics were significant predictors of role stress. Role conflict was a significant predictor in six of the job satisfaction models, while role ambiguity was significant in two models. Males and younger CEA's were more satisfied with several dimensions of job satisfaction than were female and older CEA's.

The nature of the work environment has changed drastically. Today's workers are faced with budget cuts and downsizing, frequent organizational change and new tecnological developments that require new skills. In addition, many workers must use new modes of operation. Networking and working across traditional boundaries are increasingly necessary to tap the broad knowledge base necessary to develop innovative solutions required to solve today's complex problems. Today's workers are faced with continual change.

Roles in changing organizations can be ambiguous because role expectations change frequently (Kahn et al., 1964). Previous research has shown that during periods of change, organizational members may experience a lack of understanding of their new roles (role ambguity) as well as role conflict while roles and responsibilities are renegociated. Difficulties in attempting to satisfy conflicting or incompatible job demands (role conflict) and unclear expectations (role ambiguity) are two causes of occupational stress (Rizzo et al., 1970). Furthermore, both role conflict and role ambiguity have been shown to be associated with decreased job satisfaction (Fisher & Gitelson, 1983; Jackson & Schuler, 1985; Lamble, 1980; Igbaria & Guimaraes, 1993; Zahra, 1986).

A Changing Organization

The Georgia Cooperative Extension Service is a non-formal, community-based educational program responsible for addressing a broad range of individual needs and community issues through educational programming at the county level. The state's rapid population growth, population shifts from rural to urban and suburban areas, economic depression in rural areas and new social problems continually challenge County Extension Agents (CEA's) to work across subject matter and organizational boundaries to develop innovative programs to meet continually evolving needs. Another effect of population growth is that Extension must serve larger populations in growth counties, usually with no increase in staff. In addition, more diverse populations result in a wider variety of expectations among clientele.

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Meanwhile, the Georgia CES also experienced administrative changes and adopted the National Extension Priority Initiatives. Programming for the new initiatives challenged CEA's to address critical issues and work outside their traditional disciplines. Meanwhile budget shortfalls required that some positions be left unfilled for long periods of time making it necessary for remaining county staff to assume additional responsibilities.

In Georgia, the County Extension unit serves as the base of operations for Cooperative Extension Service (CES) educational programs. At the time of the study, each county was staffed with at least one County Extension Agent (CEA), with most having at least two. CEA's are responsible for supervising the work of one or more secretaries and, sometimes, para-professionals as well as a large corps of volunteers. The county is charged with the responsibility of developing and implementing educational programs based on local problems, needs, interests and resources.

Although Extension Agents operate somewhat autonomously, they are accountable to the County and District Extension Directors. They must also maintain relationships with and satisfy the expectations of others outside the formal chain of command.

The role requirements of the Extension Agent coincides closely with the organizational roles identified by Kahn et al. (1964) that are likely to cause role conflict, role ambiguity and role stress. They are (a) roles in changing organizations, (b) roles for which there are considerable differences in expectations among various members of the role set, (c) roles that require innovative solutions to non-routine problems, (d) roles that require coordination across departmental or organizational boundaries, (e) roles with responsibility to more than one supervisor and (f) roles that require the supervision of others. Furthermore, according to White (1986), role overload is associated with budgetary shortfalls and the need to accomplish more with less money and fewer staff. In addition, when vacant positions are finally filled, a period of ambiguity and conflict may follow as role expectations are learned and negotiated.

Need for the study

Although the relationship of role conflict and role ambiguity to low job satisfaction is relatively well documented (Khan et al., 1964; Lamble; 1980; Rizzo et al., 1970), it is pointed out by Newton and Keenan (1987) that the personal and job related characteristics that Kahn et al. (1964) identified as predictors of role conflict and role ambiguity have been largely ignored. Consequently, understanding of the causes of role stress is still limited. This study attemptes to fill this void.

In addition, many of the past studies were conducted in industrial settings. Only two studies (Lamble, 1980; Lovell, 1980) were located in which role conflict and role ambiguity were examined in a CES setting. Unlike industrial workers, Extension agents work with a great deal of autonomy. Therefore, the questions were whether the same relationships exist between role conflict, role ambiguity and job satisfaction for Extension Agents as for industrial employees and which personal and organizational factors affect these relationships.

Although the findings of this study are limited to the Georgia Cooperative Extension Service, the results of this study also have implications for CES in other states which are experiencing similar situations. In addition, there are implications for other organizations experiencing downsizing and undergoing changes, as well as for workers whose job characteristics are similiar to those of Extension Agents.

Research Questions

This study was concerned with the relationship of both role conflict and role ambiguity to job satisfaction for professional employees in an informal adult education setting, the Georgia CES.

The effects of other personal and job related variables on role conflict, role ambiguity and job satisfaction were also investigated. The following research questions were posed:

1. What personal and job related characteristics are related to role conflict, role ambiguity and job satisfaction for Georgia Extension Agents?
2. Are role conflict and role ambiguity related to job satisfaction for Georgia Extension Agents?
3. How can staff development be utilized to help Extension Agents effectively deal with role conflict and role ambiguity and related issues?

The effects of twenty-three other selected personal and job related variables on role conflict, role ambiguity and job satisfaction also were investigated.

Methodology

The population for this study consisted of all 461 CEA's (CEA's) employed by the Georgia Cooperative Extension Service at the time of the survey. Since job characteristics are thought to be a major influence on role conflict and role ambiguity (Kahn, et al., 1964) location of work was selected as one of the independent variables. Using the system developed by Bachtel, Mandell and Lee (1988), counties were classified as urban, suburban, rural growth or rural decline. All of the 461 possible subjects were categorized into one of these four categories. Sampling with replacement was used to obtain results from 50 CEA's in each location category for a total of 200 subjects. Replacement subjects were selected at the same time as the original sample.

Data Collection. Data were collected by means of a mailed questionnaire, which had been pilot tested with CEA's in another state. To maintain anonomity while allowing for follow-up on non-respondents, subjects were asked to return a separate postcard to the researcher at the same time as the questionnaire. The response rate was 86.6%. The sample was representative of the population, since the means for gender and position were virtually identical for the population and sample.

Instrument. The questionnaire was developed to gather data on: (1) role conflict and role ambiguity, (2) job satisfaction,(3) programming and (4) in-service training received. Additional items were designed to obtain data on personal and job related characteristics.

Role Conflict and Role Ambiguity. Role conflict and role ambiguity were measured by a 7-point Likert-type scale using a slightly modified version of the scales developed by Rizzo et al. (1970). Two additional items, developed by Lamble (1980), were added to measure specific kinds of role conflict that occur in the CES.

The scales by Rizzo et al.,(1970) were selected because they have been widely used in research on role conflict and role ambiguity (Fisher & Gitelson, 1983; Jackson & Schuler, 1985; Lamble, 1980; Lovell, 1980; Miles, 1976; and Valenzi & Dessler, 1978). The reliability of the role conflict/role ambiguity scales was established by Schuler, et al., (1977) however, both the validity and reliability of these scales have been questioned (Tracy and Johnson, 1980; Shepherd and Fine, 1994).

Job Satisfaction. The revised Job Descriptive Index (Bowling Green State University, 1985) was used to measure job satisfaction. One item was omitted since it was not applicable to the role of CEA.

Operationalization of the Variables. Role conflict, including role overload which can be considered as a special type of role conflict (Kahn, 1964), and role ambiguity were treated as both independent and dependent variables. Role conflict, role overload and role ambiguity were treated as independent variables with job satisfaction and as dependent variables with the various personal, interpersonal, organizational and program characteristics. House and Rizzo (1972) had previously treated role conflict and role ambiguity as both a dependent and an independent variable. The various dimensions of job satisfaction were treated as dependent variables.

Data Analysis. Data were collected on twenty-three independent variables and, although some items are unique to CES, they are representative of job changes and responsibilities that have previously been found to affect employees' attitudes toward role conflict and role ambiguity (Kahn et al., 1964).

To reduce the number of variables under consideration, Varimax rotation factor analysis (Tabachnick & Fidell, 1983) was conducted. Factor patterns containing as few as three items were retained, if they met the established 0.4 theta reliability criterion. Even though the role conflict and role ambiguity scales had been widely used, Rizzo (personal communication, August, 1988) recommended that the items be factor analyzed to develop sub-scales specific to the particular occupation.

Procedures used to test the hypotheses included factor analysis, multiple regression and the chi-square test of independence. The reliability of the scales that emerged was tested using theta reliability, a special case of Cronbach's alpha (Armor, 1974).

Results

There are both similarities and differences in the factor patterns for the role conflict/role ambiguity items that emerged in this study as compared with the patterns reported by Rizzo et al. (1970) and Lamble (1980). A major difference is that three significant patterns emerged rather than two and each pattern contained fewer items.

The pattern labeled "role ambiguity" contained only six items. All six items, however, were also retained in the role ambiguity factor patterns reported by Rizzo et al. (1970) or Lamble (1980) or both. The pattern labeled "role conflict" contained seven items. Of the seven items, two were unique to CEA's in Georgia and were not retained in the role conflict pattern reported by either Rizzo et al. (1970) or Lamble (1980). The factor pattern labeled "role overload" was unique to this study. The three items in this pattern loaded on both role conflict and role ambiguity or neither in the comparative studies.

An indication of the level of role stress for CEA's in Georgia was provided by the mean scores for role conflict, role ambiguity and role overload. On a seven-point scale from never (1) to always (7), except for positively worded items where the coding was reversed, the mean score for the role conflict items was 3.68. Similar, although not identical items, administered to managers and engineers using a seven-point scale with seven as high (Rizzo et al., 1970), yielded mean scores of 4.19 and 3.86 respectively. CEA's mean score for the role ambiguity items was 3.19, while the means for managers and engineers (Rizzo et al., 1970) were 3.79 and 4.03 respectively.

From this limited comparison, it appears that role conflict and role ambiguity are slightly lower for CEA's than for the managers and engineers studied by Rizzo et al. (1970). It is, unfortunately, impossible to generalize from this limited comparison as few details were available about the managers' and engineers' work situation. However, CEA's have considerable autonomy and the lower scores may indicate that they are dealing with their situation more effectively than the managers and engineers studied by Rizzo et al. (1970).

The distributions of the subject's total scores for the role conflict, role ambiguity and role overload scales provide additional insight into the occurrence of role stress in the Georgia CES. Therefore, although the mean item scores do not appear to be unusually high for the total sample, the distributions of the total scores indicate that role conflict, ambiguity and overload are high for a number of individuals within the sample. Furthermore, role conflict appears to be widespread.

Two studies were located (Lamble, 1980; Lovell, 1980) that examined role conflict and role ambiguity among Extension Agents but, unfortunately, the use of different scales precludes meaningful comparisons. The mean score on the role overload scale for Georgia CEA's was 4.37 on a 7-point scale with seven as high.

Job Satisfaction. The slightly modified revised Job Descriptive Index (Bowling Green State University, 1985) was scored prior to the factor analysis to obtain an indication of the job satisfaction of the study population relative to the norms which have been established for the instrument. A comparison with the norms shows that CEA's satisfaction with work, supervision and co-workers appears to be about average. Female CEA's, however, are slightly less satisfied with co-workers than either male CEA's or females in the normative study. Both male and female CEA's are much less satisfied with pay and promotions than would be expected. Furthermore,

male CEA's are considerably less satisfied with pay than female agents. Female CEA's however, are considerably less satisfied with promotions than male agents.

Role conflict emerged as a significant predictor in six of the eight job satisfaction models while role ambiguity emerged as a significant predictor in two models. Gender, years of Extension experience, recent changes in program responsibilities, number of professionals interacted with on a regular basis, number of support staff worked with on a regular basis, responsibility for supervision and training received on youth issues also emerged as significant predictors of job satisfaction. Male and younger CEA's were more satisfied with several dimensions of job satisfaction than were female and older CEA's.

Specifically, less experieenced CEA's were more satisfied with three dimensions of job satisfaction than were older CEA's: satisfaction with interaction among co-workerrs, satisfaction with supervisor's ability and satisfaction with promotions.

Personal and Job Characteristic. Several independent variables emerged as statistically significant predictors of role stress (role conflict and role ambiguity) and job satisfaction. These included changes in county work location, educational level, number of support staff worked with on a regular basis, responsibility for supervision and training received on youth issues. Recent changes in work location, the number of support staff and responsibility for supervision are consistent with the job characteristics Kahn, et al. (1964) identified as likely to cause role conflict, role ambiguity and role stress.

Except for responsibility for supervision, which Newton and Keenan (1987) also identified as a strong contributor to role overload for engineers, there been little research into work characteristics and what little has been done is not comparable as different characteristics were identified. In this study, the CEA's who supervised other employees also scored higher on the role overload scale than CEA's who did not supervise other employees.

Interestingly, in this study the CEA's scores on role overload increased as the number of support staff decreased. This finding does not support the theory of Kahn et al. (1964) that role stress is related to the number of individuals in the role set. Since a larger support staff usually has program assistants who assume responsibility in clearly defined areas, it is likely that whatever additional role stress results from increased numbers of people is offset by the fact that they share the work load.

The finding that CEA's with master's degrees scored higher on the role ambiguity scale than employees with bachelor's degrees would seem to contradict the beneficial effects of education. It should be noted, however, that in this study there was no attempt to correlate role conflict, role ambiguity or job satisfaction with job performance. A possible explanation is that during the course of their studies CEA's develop a greater awareness of issues and program development models which results in ambiguity as CEA's attempt to balance the realities of time demands and expectations of traditional clientele with their own new ideas.

This finding is consistent with those of Glisson and Durick (1988) who also found that educational level and role ambiguity were positively related for human service organization workers. Human service workers, like Extension Agents, face many demands with few resources and tend to work in relatively small groups. A meta-analysis by Fisher and Gitelson (1983) also revealed a consistent and positive relationship between education and role ambiguity, although the relationship was weak. However in Newton and Keenan's (1987) study of engineers in the UK, education and role ambiguity were not related.

The finding that CEA's who had received less training on youth issues scored higher on the role ambiguity scale than employees who had received more training on youth issues provides important support for staff development programs prior to the implementation of new program initiatives. Many of the CEA's who are expected to address such issues as drug and alcohol abuse and teen pregnancy were professionally trained is in agriculture. In-service training on new initiatives can provide competency in these new areas.

Recommendations

Since role conflict and role ambiguity were identified as useful predictors of job satisfaction for CEA's, there is a need to test more rigorously the relationships which were uncovered in this study. Multiple tests should also be conducted to continually monitor the impact of further organizational change and the impacts of staff development programs.

The lower levels of satisfaction among women raises the question as to whether further research might reveal different predictors of role stress and job satisfaction for women than for the total sample. In addition, more specific role and organizational characteristics that are associated with role conflict and role ambiguity should be identified so the models can be further developed.

Implications for Strategic Planning and Staff Development. According to Goode (1960), "one of the most common complaints of high level professionals and executives is that they have no time" (p. 487). CEA's, like high level professionals, have a great deal of autonomy. The freedom to make one's own choices has advantages, but there also are disadvantages. People in autonomous roles often experience more role stress because of the opportunities and demands.

Since role conflict and role ambiguity were important predictors of job satisfaction, it is important to help CEA's manage and use them constructively. Although high levels of role conflict and ambiguity can be detrimental to both the individual and the organization (Wolfe & Snoek, 1962), role conflict and ambiguity can be either constructive or destructive (McGrath, 1976). Ambiguity provides autonomy as well as a mechanism for providing flexibility to adapt to rapidly changing situations (Weick, 1977) while conflict can provide the stimulus for innovative approaches (Thomas, 1976). Nevertheless, in this era of declining resources and downsizing, CES in all states must recognize that the organization cannot continue to be all things to all people and engage in system wide priority setting and strategic planning. Since priority setting will require that some programs be eliminated, it is important that CEA's receive training to facilitate a process that involes all segments of the clientele base in the decision. Just as businesses increasingly depend on employee expertise to shape the business strategy (Torraco & Swanson, 1995), Extension Agents should depend on clientele, supporters and community leaders to establish strategic directions. In depth training on issues identification, priority setting, planning and group process techniques should be system wide.

The relationship of role conflict and role ambiguity to satisfaction with co-workers and supervision also indicates a need for training in interpersonal communications and conflict management. Ideally, this training should include the entire county team, including support staff, in the same session,.

The decrease in job satisfaction with increasing tenure and low satisfaction of females on certain dimensions of job satisfaction is a particular concern. Since opportunities for promotions are limited, and females may not have the mobility to take advantage of the few that become available, other incentive programs might be utilized. One possibility is an officially recognized mentoring program for new employees which provides practical training to new employees while recognizing the competencies of experienced exployees who are selected as mentors.

This study also revealed that a large number of CEA's had responsibility for supervising other employees or volunteers. Because supervision was a significant predictor of role stress, all CEA's who supervise others should participate in supervisory training sessions.

Summary

Although the relationship of role conflict and role ambiguity to low job satisfaction was relatively well documented (Khan et al. 1964; Lamble, 1980; Rizzo et al., 1970), Newton and Keenan (1987) pointed out that the personal and job related characteristics that Kahn et al. (1964) identified as predictors of role conflict and role ambiguity have been largely ignored. Consequently, understanding of the causes of role stress had been limited.

In addition, many of the past studies were conducted in industrial settings. Since Extension Agents typically function in small work group with a great deal of autonomy the questions were

whether the same relationships exist between role conflict, role ambiguity and job satisfaction for CEA's as for industrial employees. This study sheds light on the similiarities and differences and identifies implications for staff development programs.

In this study both role conflict and role ambiguity were found to be significant predictors of job satisfaction. Job satisfaction, however, tended to be greater for CEA's with fewer years of Extension experience.

This study also attempted to fill a void by utilizing a large number (23) of personal and job related characteristics as independent variables in a study of employees in a changing organization. Factor analysis yielded several statistically significant factor patterns that were further analyzed by multiple regression to illuminate the relationship of personal and job related characteristics to role conflict and role ambiguity. Significant predictors of higher levels of role stress (role conflict and role ambiguity) and job satisfaction included recent changes in county work location, higher educational level, fewer support staff worked with on a regular basis, responsibility for supervision and less training received on youth issues.

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Professional Learning on the Job of Dutch Secondary Teachers: Exploring Opportunities for Informal Learning

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In this study opportunities for informal learning of Secondary school teachers are adressed. Professionals are expected to learn by executing specific activities. As it was assumed that professional learning is related to individual and job variables, a questionnaire was constructed to measure activities as well as motivation, professional attitudes, job stress, and job characteristics. Analysis will aim at answering two questions: 1) To what extent do teachers perform professional activities?, and 2) Which variables are related to this performance?

Professionals generally need to keep up their skills after they have graduated in order to develop their competence and to improve the quality of the service provided to clients (Houle, 1980; Mintzberg, 1979). Traditionally, professionals are expected to improve and update their skills in very specific ways: by reading journals and literature, participating in courses and attending conferences (Houle, 1980; Mintzberg, 1979; Noe & Wilk, 1993). Thus, new scientific developments arising outside the professional practice are the main source for improvement of that practice. Therefore, it is assumed that professional development is largely based on learning by transmission of knowledge.

Recently, this model of professional development has been discussed for teachers (Darling-Hammond & McLaughlin, 1995; Lieberman, 1995; Little, 1993). Although transmission of knowledge is of importance for professional learning, it is viewed as only one aspect of professional development. As professional development also refers to changes in knowledge, skills, attitudes, and behaviour, professionals need to create their own knowledge and change their behaviour in order to implement new developments and to improve their practice (Hoyle & John, 1995; Osterman & Kottkamp, 1993). In this new model of knowledge creation, other ways of learning are stressed. Great emphasis is given to learning on the job and to a variety of activities which are hypothesized to stimulate reflection and interaction.

So, professional learning on the job is conceived of as executing activities in the course of daily work, which may lead to improvement of practice. These learning activities may be subdivided into four categories (Calderhead & Gates, 1993; Eraut, 1993; 1995; Fullan, Bennett & Rollheiser-Bennett, 1990; Fullan & Hargreaves, 1992; Hoyle & John, 1995; Imants, Tillema & De Brabander, 1993; Southworth, 1994):

- keeping up with new developments in the professional field
- putting new developments and insights into practice
- reflecting on one's own performance
- cooperating in policy and practical matters.

With this shifting attention to learning on the job the question arises if teachers' work provides sufficient opportunities for such kinds of learning. As most of teachers' work takes place in the classroom and is executed independently, there may be little possibilities for reflection, interaction, and cooperation with colleagues. In the literature about professional development specific workplace conditions and school features are stressed like mutual goals, collegiality, participation, support, and autonomy (Clement & Staessens, 1993; Firestone & Pennell, 1993; Fullan, 1992; Hargreaves, 1994; Leithwood, 1992; Little, 1990; Rosenholtz, Bassler & Hoover-Dempsey, 1986; Rosenholtz, 1989; Rowan, 1995). However, the relationship of these conditions with learning is assumed and it remains unclear in what way these conditions may contribute to learning.

Theoretical Framework

In this study, a social psychological model to explain job stress was taken as a starting point for a theoretical framework for teacher learning in the workplace. The Karasek model proposes

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the discretion permitted to the worker in how to meet these demands: job control (De Jonge, that psychological strain results from the joint effects of the demands of a work situation and Janssen & Van Breukelen, 1996; Karasek & Theorell, 1990; Söderfeldt, Söderfeldt, Muntaner, C'Campo, Warg & Ohlson, 1996). The major prediction of the model is that strain will occur when job demands are high and control is low, whereas the second prediction is that motivation, learning, and growth will occur in situations where both job demands and control are high (De Jonge et al, 1996).

This model has been extensively tested, but not for the learning hypothesis. In this study the concepts of job demands and job control will be used to gain more insight into the effects of these job characteristics on learning. However, as job control has different components, the study will include two different operationalizations of this concept. The first is 'job variety', i.e. the degree to which the job involves learning new things, novelty, absence of routinization, and development of the workers' special abilities. The second component is 'job autonomy', i.e. the freedom to make decisions about one's own job and to influence the work group and company policy (Söderfeldt et al, 1996). Of these two components 'job variety' comes closest to the meaning of control in the Karasek model. Next to these three variables the study includes job stress variables in order to test the predicted main effects of the model.

The study will be extended with the variables 'learning motivation', 'professional attitudes', and 'social support'. Learning motivation was measured because of the importance attached to this variable in adult learning and self-directed learning theories (Candy, 1991; Farr & Middlebrooks, 1990; Merriam & Caffarella, 1991). Because of the nature of professional work and the individual responsibility professionals have for their own development, teachers have to agree with the need of improving practice and developing theirselves. So, professional attitudes are considered to be of major influence. (Fullan,1991; Houle, 1990; Imants, Tillema & De Brabander, 1993; Rowan, 1995; Rowan, Raudenbush & Kang, 1993; Smylie, 1992; Willis & Dubin, 1990). The most common criticism of the Karasek model is that it is too simple and that it needs to be extended. So, it is stated that control is not the only variable to cope with job demands and that social support may be extremely important in this respect. Social support may also be regarded as indicative of a favorable schoolculture or collaborative climate which many authors regard as a significant factor in professional development (Hargreaves, 1994; Leithwood, 1992; Louis & Smith, 1990; Rosenholtz, 1989; Southworth, 1994).

Research Questions

The present study was carried out to gain more insight in the occurence of learning on the job, and in the variables that are related to professional learning. So, two research questions were formulated:

1) To what extent do teachers perform professional activities?
2) Which variables are related to this performance?

Methodology

Procedure. In six different areas of The Netherlands, all schools providing at least two types of Secondary education were asked to participate in the study. From these 63 schools, 15 were willing to participate. Data collection took place in the Spring of 1997 by means of a survey. A questionnaire was administered to all 967 teachers in these 15 schools.

Respondents. Finally, 558 teachers returned the questionnaire. So, the response rate was 58%, which is fairly high for this kind of organizational research. The mean age of the sample is 45,8 years (SD=9,0); 68% are male (n=372) and 32% female (n=174). Their mean working experience is 20 years (SD=9,8).

Measures

Professional Activities were measured by 21 items. These items were derived from interviews (Kwakman, 1997). Teachers were asked to state how often they performed each activity on a four-point scale (1=hardly ever, 2=sometimes 3=fairly often, 4=often).

Learning Motivation was measured by 2 items in connection to each activity (2 x 21 items in sum). Teachers were asked to state their opinions about the meaningfullness and feasibility of each of the 21 activities.

Professional Attitudes were measured by means of 8 items reflecting specific ways in which teachers may feel obliged to improve their professional practice. They were asked to

indicate to what extent they agreed with each of the statements on a four-point scale (1=disagree, 2=slightly disagree, 3=slightly agree, 4 = agree).

Personal Accomplishment (as one component of job stress) was measured by 4 items, referring to one's feeling of competence and succesful achievement. They were derived from the Dutch Version of the Maslach Burnout Inventory for Teachers (Schaufeli, Daamen & Van Mierlo, 1994). They are scored on a seven-point scale: 1=never, 2=hardly ever, 3=seldom, 4=sometimes, 5=often, 6=nearly always, 7=always.

Emotional Exhaustion is another component of job stress and was measured by 3 seven-point items (ranging from 'never' to 'always') asking teachers to what extent they feel emotionally overextended. The items were derived from the Dutch Version of the Maslach Burnout Inventory (De Jonge, Janssen & Van Breukelen, 1996; Schaufeli & Van Dierendonk, 1993).

Job Demands were measured by means of 7 four-point items (1=hardly ever, 2=sometimes, 3=often, 4=nearly always), all referring to quantitative demanding aspects such as pace of work and work load. They were all derived from a 11-item scale developed by the Dutch Institute of Working Conditions (VBBA; Van Veldhoven & Meijman, 1994).

Job Variety was measured by 9 four-point items, derived from two different scales developed by the Dutch Institute of Working Conditions (VBBA; Van Veldhoven & Meijman, 1994). Five items were originated from the scale 'job variety' whereas four items were originated from the scale 'learning opportunities', asking how much diversity the work offers and how many opportunities are provided to learn and develop.

Job Autonomy was also measured by items derived from scales developed by the Dutch Institute of Working Conditions. Sixteen four-point items were derived from the scales 'autonomy' and 'participation'. They measure the opportunity to determine and have influence over decisions, working conditions, and task characteristics (response scale ranging from 1 'hardly ever' to 4 'always').

Social Support of Colleagues was measured by 4 items of work-related support from colleagues. These four-point items (1=hardly ever, 2=sometimes, 3=often, 4=nearly always) were derived from a Dutch questionnaire on organizational stress (VOS-D; Bergers, Marcelissen & De Wolff, 1986).

Social Support of Management was measured by 5 items of work-related support from the school management (four-point scale). These items were developed by the Dutch Insitute of Working Conditions.

Support for Development was measured by 5 items which were developed for this survey. Teachers were asked to state on a four-point scale to what extent opportunities for training and development are offered.

Analysis. Analysis was mainly directed at revealing relationships between professional learning and different individual and job variables. Firstly, scales will be constructed by means of factorial analyses. Descriptive statistics and correlations will be given. Next, regression analysis will be performed to reveal relationships between different variables and learning.

Results

Professional Activities. In order to answer the first research question a factor analysis was executed (Principal Component Analysis). This analysis yielded four different factors; 3 items had to be removed. Eigenvalues of the factors are 4.37, 1,68, 1.51, and 1,30; this means that 46% of the variance is explained by these 4 factors. Table 1 shows the factor loadings of the different items.

The first factor consists of 5 activities which all refer to cooperation with other people within the school organization. They demand a fairly high degree of involvement in the school as an organization. So, this factor was called 'active cooperation'. The reliability of the scale is .74 (Cronbach's alpha).

The second factor includes 7 items. Six of them have to do with keeping up with new developments or insights and putting them into practice; one refers to reflection. All activities may be performed individually and they are all directed towards teaching in the classroom. Thus, the label for this factor is 'individual teaching improvement'. The reliability of the scale is .65.

The third factor includes 2 items which fall into the category of reflection. As it was assumed that individual as well as collective activities may stimulate reflection, these two items refer to reflection by 'sharing experiences' with colleagues. This factor was labeled likewise. The reliability for this scale is .74.

Table 1
Factor loadings of items in a 4-factor Principal Component Analysis with Varimax-rotation

	Factor 1	Factor 2	Factor 3	Factor 4
Give opinion to school management	.79	.01	-.01	.01
Discuss about educational improvement	.72	.15	.04	-.03
Join a committee at the school	.70	.07	-.15	.16
Participate in pupil counseling policy	.61	.22	.17	.14
Support colleagues in teaching problems	.53	.13	.20	.13
Study subject matter literature	.01	.62	-.16	.34
Read professional journals	.18	.59	.09	.18
Study teaching manuals	.22	.59	-.19	.19
Experiment with new teaching methods	.16	.56	.31	-.26
Teach students study skills	.27	.49	.04	.09
Adapt way of teaching to pupils' needs	-.06	.45	.10	.10
Ask pupils feedback	.22	.45	.32	-.31
Discuss way of teaching with colleagues	.03	.02	.83	.12
Share teaching problems with colleagues	.09	.10	.78	.29
Construct teaching materials	.16	.03	.07	.70
Prepare lessons with colleagues	-.03	.26	.10	.54
Use colleagues' materials in own lessons	.33	.07	.18	.51
Make agreements about the way of teaching	.07	.28	.14	.39

The fourth factor comprises of 4 items deriving from two different categories of activities. However, these activities have in common that they all refer to a different aspect of preparing lessons. Thus, the factor was labeled 'didactical preparation'. The reliability for this scale is a little low: .54; the non-homogeneous items of this scale may account for this. As preparing lessons is a specific and significant part of teachers' work, this scale was not removed.

Table 2 shows the mean scale scores and standard deviations of the four factors. The mean scale scores reveal that sharing experiences is most frequently executed whereas didactical preparation is least frequently performed.

Table 2
Mean scale scores and standard deviations of factors

	Mean scale score	Standard deviation
Active cooperation	2.22	.62
Individual teaching improvement	2.43	.46
Sharing experiences	2.50	.67
Didactical preparation	2.18	.52

Related Variables. For an answer to the second research question scales had to be constructed first. For motivation, four different scales were constucted. For each factor, a motivational scale was constructed by calculating the mean score of all statements about meaningfullness and feasibility concerning the activities the factor comprises.

By means of factor analytical procedures on the remaining items, the original scales were reproduced although some items had to be removed. Table 3 shows the descriptive statistics of all scales, whereas Table 4 shows significant correlations between learning, stress, and the independent variables. Inspection of these correlations reveales that there are many significant correlations although most of them are weak or moderate (below .40). Only seven correlations are .40 or above, which may be interpreted as (moderately) strong. So, it may be concluded that individual teaching improvement is positively related to professional attitudes, whereas personal accomplishment is positively related to job variety. Other strong relationships only exist between motivation and different types of professional learning, and between professional attitudes and individual teaching improvement.

Table 3
Descriptive statistics of individual and job variables

	Mean scale score	Standard deviation	Cronbach's Alpha	Number of items
Motivation for cooperation	2.95	.49	.78	10
Motivation for improvement	3.06	.75	.75	14
Motivation for sharing	3.30	.82	.82	4
Motivation for preparation	2.87	.70	.70	8
Professional attitudes	3.11	.52	.75	6
Personal accomplishment	4.81	.68	.72	4
Emotional exhaustion	3.67	1.09	.82	3
Job demands	2.41	.57	.87	7
Job variety	2.66	.52	.86	7
Job autonomy	2.46	.48	.86	13
Collegial support	3.21	.56	.79	4
Managerial support	2.95	.70	.85	5
Support for development	2.56	.54	.66	5

Table 4
Significant correlations of variables (p≤.05, two-tailed)

	Active coopera-tion	Ind. Improve-ment	Share experien-ces	Did. prepara-tion	Pers. Accom-plishment	Emot. Exhaust-ion
Mot. for cooperation	*.58*	.23	.12	.18	.29	-.19
Mot. for improvement	.25	*.64*	.14	.22	.27	-.19
Mot. for sharing	.19	.15	*.54*	.22	.09	-.15
Mot. for preparation	.18	.20	.15	*.64*	.15	-.14
Professional attitudes	.28	*.40*	.23	.18	.22	-.13
Personal accomplishment	.28	.28		.10		-.34
Emotional exhaustion		-.14				
Job demands	.14			-.09	-.13	*.56*
Job variety	.27	.27	.16	.14	*.40*	-.33
Job autonomy	.22	.11	.09	.09	.35	-.29
Collegial support	.10		.17	.17		-.25
Managerial support	.13					-.24
Support for development	.25	.20	.09	.17	.17	

In order to test the hypotheses of the Karasek model, a regression analysis was performed, with learning and emotional exhaustion as dependent variables. In this analysis, age and experience were also included as well as three dummy-coded variables: gender, subject matter, and extra curricular tasks. Beta-weights and explained variances are shown in Table 5.

To start with emotional exhaustion: in accordance with the propositions of the Karasek model, teachers who suffer from emotional exhaustion report higher job demands, whereas their feelings of personal accomplishment and perceptions of job variety appear to be slightly more negative. Teaching arts seem to contribute to exhaustion to a small extent.

Considering the first type of professional learning 'active cooperation', the propositions of Karasek are partial confirmed. Although job demands and job variety both contribute to this type of learning, motivation and executing extra curricular tasks contribute even more. There is also a small effect of experience indicating that teachers with more experience do cooperate to a larger extent.

Individual teaching improvement relates most strongly to motivation, whereas it is slightly negatively related to motivation for sharing experiences and to experiencing managerial support. Professional attitudes and personal accomplishment contribute slightly positive to this type of professional learning.

Sharing experiences is negatively related to motivation for improvement but strongly positive to motivation for sharing, and slightly positive to professional attitudes.

Didactical preparation is strongly related to motivation and weakly related to job demands. Age and subject matter go together with more sharing; indicating that teachers who teach arts or are older execute activities concerning didactical preparation more frequently.

Table 5
Significant beta-weights of variables in a multiple regression analysis (method = Stepwise, $p \leq .05$ and Δ R-squared $>.01$)

	Active cooperation	Ind. improvement	Share experiences	Did. preparation	Emot. Exhaustion
Mot. for cooperation	.50				
Mot. for improvement		.62	-.16		
Mot. for sharing		-.17	.57		
Mot. for preparation				.65	
Professional attitudes		.15	.17		
Personal accomplishment		.14			-.24
Job demands	.18			.12	.51
Job variety	.17				-.16
Job autonomy					
Collegial support					
Managerial support		-.12			
Support for development					
Age				.11	
Teaching experience	.14				
Gender					
Subject matter				.14	.11
Extra curricular tasks	.26				
Explained variance	.50	.47	.33	.46	.42

Conclusions

The professional activities teachers perform most frequently are sharing experiences and activities to keep up with new developments and to apply these into practice. These results confirm that teachers' professional learning takes place in traditional ways rather than in cooperative ways. Striking is that one of teachers' core activities, preparing lessons, is least frequently performed. This may partly be explained by standardization of teachers work as lesson materials are prescribed. However, standardization does not explain why teachers hardly prepare lessons together or make agreements about the way of teaching.

With regard to the propositions of the Karasek model, the prediction that high demands and low control leads to job stress is confirmed. In addition, it may be concluded that job demands positively relates to emotional exhaustion whereas job variety positively relates to personal accomplishment. A combination of high demands and low variety will lead to high emotional exhaustion and low personal accomplishment which is indicative for job stress.

The prediction that learning will occur in situations where both demands and control are high is hardly supported by the findings. Nevertheless, all variables in this study do relate to some extent to performing activities, although not every variable is of the same significance for every type of learning. Motivation appears to be the most significant factor: all types of motivation show very strong correlations with learning, whereas motivation is also the greatest predictor of executing professional activities. A possible explanation may be that the variables in this study are not related in a rather linear way. Therefore, univariate analysis of variance took place: teachers were divided into two groups according to their scores on every type of activity: scores below one standard deviation were coded as 'low', whereas scores above one standard deviation were coded as 'high'. Means between these groups on all variables in this study are shown in Table 6. Thus, it becomes clear that teachers with low scores on activities do have lower scores on some other variables whereas teachers with high scores on activities have the highest scores. However, for every variable, the magnitude of the differences

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varies. Although some differences are small, they indicate that individual and job variables are related to professional activities in a complex way.

Table 6
Significant differences between groups with low and high scores on types of activities ($p \leq .05$)

	Active cooperation		Individual improvement		Share experiences		Didactical preparation	
	low n=103	high n=68	low n=70	high n=80	low n=43	high n=54	low n=78	high n=104
Prof. atitudes	2.94	3.37	2.80	3.35	2.87	3.33	2.96	3.24
Pers. accomplishment	4.60	5.15	4.52	5.13			4.67	4.92
Emot. exhaustion								
Job demands	2.28	2.55						
Job variety	2.59	3.01	2.38	2.85	2.57	2.84	2.52	2.77
Job autonomy	2.37	2.70	2.32	2.50				
Collegial support	3.10	3.33			3.04	3.35	3.05	3.34
Managerial support	2.85	3.18					2.74	2.96
Sup. for development	2.37	2.81	2.46	2.78	2.51	2.73	2.44	2.79

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